

Abstract

5 A moldable heat shield with a needled nonwoven core layer and
needled nonwoven shell layers. The core layer has a blend polyester staple
fibers and low melt polyester staple fibers. The shell layers have a blend of
staple fibers of partially oxidized polyacrylonitrile, and staple fibers of
polyester, and staple fibers of a low melt polyester. The layers are needled
together such that fibers from the core layer do not reach the outer surfaces of
the shell layers. The shell layers are calendared such that an outer surface
layer is formed thereon, which provides the moldable heat shield with a water
10 and oil resistant surface.